

Cross-Reference to Related Applications:

This application is entitled to the benefit of and incorporates by reference essential subject matter disclosed in International Patent Application No. PCT/SE00/01683, International Filing Date September 1, 2000; Swedish Application No. 9903085-0, filed on 1 September 1999; and Swedish Application No. 0001075-1, filed on 27 March 2000.

Please replace the first paragraph with the following paragraph:

The present invention refers to a use of at least one substance based on nicotine and/or a substance produced from said one substance for the manufacture of a medicament to be supplied to human beings or animals. The invention also refers to a method for prophylactic or therapeutic treatment of obstructive lung diseases in human beings or animals.

Please replace the last paragraph that begins on page 1 and ends on page 2, with the following paragraph:

During normal inhalation the bronchi are expanded, which counteracts the obstruction to a certain extent. During the following exhalation the lung tissue is compressed, including the bronchi, and a somewhat smaller gas volume may therefore flow through the respiratory tract. This leads to a valve effect when a certain balance arises. By a certain overpressure in the respiratory tracts and the lung, the obstruction may be overcome and the inhaled gas volume be emptied. The pressure in the lung is however not sufficient for completely emptying the lung. There is always a certain amount of air (residual volume; normally about 500 ml of an adult) in the lung after the first breath. This balance depends inter alia on and is influenced by the ambient air pressure; the greater the pressure the weaker the respiratory tracts, especially for early born, immature children.

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Please replace the second paragraph with the following paragraph:

During smoking the mucous membrane in the respiratory tracts and bronchi is irritated, which leads to a swelling of the mucous membrane. This swelling decreases the lumen of the respiratory tracts, i.e. the obstruction arises and thus the air flow in the respiratory tracts is restrained. This leads to an increase in valve effect, resulting in a higher pressure in the respiratory tracts and the lung, and to a larger residual volume in the lung. The increase also leads to a destruction of tissue, which further reduces the gas exchange, i.e. the breathing capacity. If nicotine or nicotine-like substances are supplied, not via the respiration, a vessel contracting, decongestant effect, which reduces the obstruction, is obtained.

Please replace the third paragraph which begins on page 2 and ends on page 3, with the following paragraph:

Pulmonary barotrauma appears from tissue destruction caused by the above-described inner pressure. Pulmonary barotrauma may principally refer to one single alveolus or a smallest respiratory tract, or several small alveoli within the lung. If this tissue destruction process is expanded to the whole lung it is called pulmonary emphysema. In the cases when air is collected diffusely in the lung tissue proper, we have an interstitial emphysema or in a delimited way, a bulla (blister). If the air is collected adjacent to the pleura in a delimited manner we have a subpleural bleb. The air may also come to the intrapulmonary space and we have a so-called pneumomediastinum or into the heart sack; pneumopericardium. If the tissue destruction is expanded so that the pleura is destroyed, we have a spontaneous pneumothorax (SP). With regard to the fact that pathophysiological changes in the lung are documented in case of SP, it is not any longer relevant to call SP a disease of the pleura.

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Please replace the first full paragraph with the following paragraph:

The obstruction leads to an expansion in one part of a lung and thus compression in the surrounding remaining portion of the lung. Such an expansion and compression is irreversible for a smoker even if he would stop smoking. If the surrounding compressed lung part is very large, surgery could be considered for removing a large significant blister and thus create space for the respiratory work. However, it is very rare that a patient is suitable for such an operation, whereby an expected effect is far from being optimal.

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Please replace the second, third and fourth full paragraphs with the following paragraphs:

This object is obtained by the use of at least one substance based on nicotine and/or a substance produced from said one substance for the manufacture of a medicament to be supplied to human beings or animals for the purpose of counteracting obstructive lung diseases in a prophylactic or therapeutic manner.

The applicant has realised that nicotine, if it is not supplied via the respiration, has an inhibitory effect on the development of respiratory tract obstruction followed by the irreversible substance loss, elasticity loss and expansion of the lung tissue, i.e. the negative effects arising from pulmonary emphysema, pulmonary barotrauma and spontaneous pneumothorax. By supplying nicotine to the body of the persons suffering from pulmonary emphysema, it is possible to prevent or limit the development of the disease. Nicotine also ought to have a prophylactic effect, i.e. the origin of pulmonary emphysema of persons having a risk to be effected by this disease, for instance smokers, which have stopped smoking, may be prevented by the supply of nicotine, however not via the bronchi, respiratory organs.

The definition of at least one substance based on nicotine and/or a substance produced from said one substance is to be given a broad interpretation and in this definition are included substantially pure nicotine, nicotine compounds, nicotine related compounds, nicotine derivatives, intermediate metabolites of nicotine and/or nicotine compounds, degradation products from